

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2006-____
FOR
AERA ENERGY LLC
ROW 4 / LOST HILLS WASTEWATER DISPOSAL FACILITY
SOUTH BELBRIDGE OIL FIELD
KERN COUNTY

Compliance with this Monitoring and Reporting Program is required pursuant to Water Code Section 13267.

A. REQUIRED MONITORING REPORTS

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|----|---|------------------------|
| 1. | Proposed Sampling and Analysis Plan (Section C) | By 30 June 2006 |
| 2. | Facility Monitoring (Section C.1) | As necessary |
| 3. | Wastewater Monitoring (Section C.2) | Semi-Annually |
| 4. | Groundwater Evaluation Monitoring (Section C.3) | Semi-Annually |

B. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program. Reports that do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the Waste Discharge Requirements. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. Data shall also be submitted in a digital database format acceptable to the Executive Officer. The data shall be summarized in such a manner so as to illustrate clearly the compliance with Waste Discharge Requirements or the lack thereof. A short discussion of the monitoring results, including notations of any water quality violations, shall precede the tabular summaries.

The monitoring reports must be signed by a person identified below:

1. For a corporation: by a principal executive officer of at least the level of senior vice-president.
2. For a partnership or sole proprietorship: by a general partner or the proprietor.
3. A duly authorized representative of a person designated in a, b or c above if:
 - a. The authorization is made in writing by a person described in a or b of this provision;
 - b. the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent

responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and,

- c. the written authorization is submitted to the California Regional Water Quality Control Board, Central Valley Region (hereafter Central Valley Water Board).

The monitoring reports must include the following certification on the cover page:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

The reporting frequencies and report periods are:

<u>Sampling Frequency</u>	<u>Reporting Frequency</u>	<u>Reporting Periods End</u>	<u>Report Date Due</u>
Monthly	Semi-Annually	Last day of Month	31 January 31 July
Semi-Annually	Semi-Annually	31 December 30 June	31 January 31 July
Annually	Annually	31 December	31 January

The results of any monitoring conducted more frequently than required at the locations specified herein or by the waste discharge requirements shall be reported to the Central Valley Water Board.

C. MONITORING

All monitoring shall be conducted in accordance with an approved sampling and analysis plan. A proposed Sampling and Analysis Plan for the facility shall be submitted by **30 June 2006**.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those that cannot be quantified and/or specifically identified. Samples for the constituents of concern shall be collected and analyzed in accordance with the methods listed in Table I.

The Discharger may use analytical test methods, including new U.S. EPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

1. **Facility Monitoring**

a. **Freeboard Monitoring**

Freeboard measuring devices shall be installed in each of the perimeter surface impoundments. Freeboard levels shall be observed and recorded monthly and reported semi-annually.

b. **Facility Inspection**

The Discharger shall inspect all containment facilities for damage semiannually. The Discharger shall report any damages observed to the Central Valley Water Board staff immediately. Any necessary work related to construction, maintenance, or repairs shall be implemented within 30 days of the inspection. Any subsequent repairs conducted by the Discharger shall be reported to the Central Valley Water Board staff within 30 days of completion of the repairs.

c. **Storm Events**

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage within 7 days following a storm yielding one inch or more of precipitation within 24 hours. Necessary repairs shall be completed within 30 days of the inspection. The Discharger shall report any damage and subsequent repairs within 30 days of completion of the repairs.

d. **Earthquake Events**

The Discharger shall perform a full-scale facility inspection within 7 days following an earthquake that could potentially damage waste management units and/or the facility. Necessary repairs shall be completed within 30 days of the inspection. The Discharger shall report any damage and subsequent repairs within 30 days of completion of the repairs.

2. **Wastewater**

Sampling stations shall be established where representative grab samples of the wastewater discharge can be collected. As a minimum, wastewater samples shall be collected from (1) the influent to the initial impoundment; and (2) from the final impoundment. Samples should be representative of the volume and nature of the discharge. The following shall constitute the wastewater monitoring program:

<u>Constituent</u>	<u>Units</u>	<u>Sampling Frequency</u>
Total Discharge Flow to the facility	barrels	Monthly
Field Parameters ¹		Semi-annually
Monitoring Parameters ¹		Semi-Annually
Constituents of Concern ¹		Semi-Annually

¹ See Table I

3. **Groundwater Evaluation Monitoring**

An evaluation monitoring program shall be conducted by the Discharger. The monitoring program shall include those wells listed in Table II and additional wells as needed to investigate the wastewater impacts in groundwater.

The Discharger shall operate and maintain a Groundwater Monitoring Evaluation System in accordance with the Monitoring Plan described herein. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample and Analysis Plan.

Water level elevations shall be collected according to the monitoring schedule set forth below. The Discharger shall determine groundwater flow rate in any zone(s) of saturation monitored pursuant to this Monitoring and Reporting Program, and report the results semi-annually. Additionally, hydrographs of each well shall be prepared showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be submitted annually.

Groundwater samples shall be collected and analyzed according to the monitoring schedule set forth below. The Constituents of Concern shall be evaluated with regards to the cation/anion balance semi-annually. The chloride and total dissolved solids monitoring parameters and the calcium, sodium, and sulfate constituents of concern shall be graphically presented using a geochemical chart annually.

The following shall constitute the groundwater evaluation monitoring program:

<u>Constituent</u>	<u>Units</u>	<u>Sampling Frequency</u>
Groundwater Level Elevations	Ft. & hundredths, M.S.L.	Semi-Annually

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Field Parameters ¹	Semi-Annually
Monitoring Parameters ¹	Semi-Annually
<u>Constituents of Concern¹</u>	Semi-Annually
¹ See Table I	

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

Date

DLW: 05/31/06

TABLE I
MONITORING PARAMETERS

Constituent	Units	US EPA Method
<u>Groundwater Elevation</u>		
Groundwater Elevation	Ft. & hundredths, M.S.L.	
<u>Field Parameters</u>		
Temperature	°C	
Specific Conductance	µmhos/cm	
pH	pH units	
<u>Monitoring Parameters</u>		
Total Dissolved Solids (TDS)	mg/L	160.1
Specific Conductance	µmhos/cm	120.1
Chloride	mg/L	300.0
Boron, dissolved	mg/L	6010B
<u>Constituents of Concern</u>		
<u>Standard Minerals</u>		
Alkalinity as CaCO ₃	mg/L	310.1
Bicarbonate Alkalinity as CaCO ₃	mg/L	310.1
Carbonate Alkalinity as CaCO ₃	mg/L	310.1
Hydroxide Alkalinity as CaCO ₃	mg/L	310.1
Sulfate, dissolved	mg/L	300.0
Nitrate-N, dissolved	mg/L	300.0
Calcium, dissolved	mg/L	6010B
Magnesium, dissolved	mg/L	6010B
Sodium, dissolved	mg/L	6010B
Potassium, dissolved	mg/L	6010B
<u>Aromatic Hydrocarbons</u>		
Benzene	µg/L	8260B
Ethylbenzene	µg/L	8260B
Toluene	µg/L	8260B
m,p-Xylenes	µg/L	8260B

Constituent	Units	US EPA Method
o-Xylene	µg/L	8260B

TABLE II

MONITORING WELLS

Program	Aquifer I	22K Aquifer	Aquifer II
Evaluation Monitoring	25G1 25J1 212(1)-25 212(2)-25 218(1)-25 218(2)-25 285(2)-24 313R1 323Q1 327K1	7N2 13F1 13H1 24P1R 25G2 25J2 212(3)-25 218(3)-25 284(3)-35 285(3)-24 313R3 323G3 325D4 / 325DPZ3 327K3	13F2 24P3